

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

10/069693

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| Applicant s or agent s file reference  | <b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |   |
| International application No.<br>PCT/UA 00/00024                             | International filing date (day/month/year)<br>14 July 2000 (14.07.2000)   | Priority date (day/month/year)<br>26 August 1999 (26.08.1999) |
| International Patent Classification (IPC) or national classification and IPC |   | G09F 19/12, 11/04   |
| Applicant<br>KHARCHENKO, Sergey Nikolayevich et al.                          |   |   |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This Report consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under PCT).

These annexes consist of a total of 1 sheets

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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|--|--|
| Date of submission of the demand:<br>23 March 2001 (23.03.2001)  | Date of completion of this report:<br>29 October 2001 (29.10.2001) |
| Name and mailing address of the IPEA/ RU FIPS<br>Russia, 123995, Moscow, G-59<br>Berezhkovskaya nab., 30-1 | Authorized officer<br>V. Bulanov                                   |
| Facsimile No.  | Telephone No 240-25-91   |

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/00/0024

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
pages 1-18, as originally filed,  
pages, filed with the demand,  
pages, filed with the letter of
- ☒ the claims:  
pages 20-21, as originally filed,  
pages, as amended (together with statement) under Article 19,  
pages 19, filed with the demand,  
pages, filed with the letter of
- ☒ the drawings:  
pages 1/7-7/7, as originally filed,  
pages, filed with the demand,  
pages, filed with the letter of
- ☐ the sequence listing part of the description:  
pages, as originally filed,  
pages, filed with the demand,  
pages, filed with the letter of

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1.(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet/fig. \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under 1 and annexed to this report.

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

## 1. Statement

|                               |        |      |     |
|-------------------------------|--------|------|-----|
| Novelty (N)                   | Claims | 1-16 | YES |
|                               | Claims |      | NO  |
| Inventive Step (IS)           | Claims | 1-16 | YES |
|                               | Claims |      | NO  |
| Industrial Applicability (IA) | Claims | 1-16 | YES |
|                               | Claims |      | NO  |

## 2. Citations and explanation:

The examination report has been prepared with regard to the following documents cited in search report:

D1- FR 2040104 A

D2- SU 70585 A

D3-US 4689604 A

D4- US 4296562 A

D5- GB 2080594 A

The document D1 describes a stroboscopic display device including at least one carrier of light source.

The document D2 describes a display device including one carrier of light source, rotary drive connected with the carrier of light source by means of a shaft.

The documents D3-D5 describe the display devices including a carrier of light sources with the control unit for providing the possibility of software management.

The claimed invention is novel and involves an inventive step since the prior art doesn't disclose the characteristic features of the invention, namely a plurality of light sources arranged on the external surface of the carrier, a control means on the basis of a microprocessor to control said light sources; the control means comprising a sensor to signal said carrier position, a synchronizer to synchronize the operation of light sources, and program means to record and process the data to be displayed and generate commands to cut in and out said light sources; all the light sources are point light sources; the carrier

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## Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

is cantilevered onto a shaft of the rotary drive and formed as a carrier which has its shape corresponding to an appropriate revolution body generatrix, its thickness commensurable with the cross-section of a point light source, and its width, measures radially, which is sufficient for the carrier to illusorily disappear from the vision field of a spectator when gyrated; the optical axis of each light source is perpendicular to the revolution body generatrix which is formed by a selected shape of said carrier.

These features allow to increase the quality of an image by providing the effect of an image "hovering (dangling) free in the air".

## CLAIMS

1. A stroboscopic display device including —  
at least one carrier of light sources;

5 a rotary drive kinematically associated with said carrier of light sources by  
means of a shaft;

a plurality of light sources arranged on the external surface of said carrier;

a control means on the basis of a microprocessor to control said light  
sources; the control means comprising a sensor to signal said carrier position, a  
synchroniser to synchronise the operation of light sources, and program means  
10 to record and process the data to be displayed and generate commands to cut  
in and out said light sources

*characterized in that —*

(a) all the light sources are point light sources;

(b) the carrier is cantilevered onto a shaft of the rotary drive and formed as  
15 a carrier which has its —

shape corresponding to an appropriate revolution body generatrix,

thickness commensurable with the cross-section of a point light source,  
and

width, measured radially, which is sufficient for the carrier to illusorily  
20 disappear from the vision field of a spectator when gyrated;

(c) the optical axis of each light source is perpendicular to the revolution  
body generatrix which is formed by a selected shape of said carrier.

2. The device according to Claim 1 *characterized in that —*

(a) the thickness  $m$  of the carrier is defined by the expression

25  $d_{pls} < m \leq 9d_{pls}$

where  $d_{pls}$  is the cross-section of the light emitting surface of a point light  
source;

(b) the width  $B$  of the carrier is determined by the expression

$B \leq 0,1 R_{max}$

30 where  $R_{max}$  is the radius of the circle described by the point light source which is  
maximally distanced from the axis of the drive shaft.

3. The device according to Claim 1 *characterized in that* it has in the  
geometrical plane of said carrier a balancer cantilevered onto the rotary drive  
shaft oppositely to the carrier.